



U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Species Account
COLUSA GRASS
Neostapfia colusana



CLASSIFICATION: THREATENED

Federal Register Notice 58:14338; March 26, 1997

http://ecos.fws.gov/docs/federal_register/fr3057.pdf (125 KB)

STATE LISTING STATUS AND CNPS CODE:

This species was listed as endangered by the California Department of Fish and Game in November 1978. The California Native Plant Society has placed it on List 1B (rare or endangered throughout its range).

CRITICAL HABITAT: Originally designated in Federal Register 68:46683; August 6, 2003.

The designation was revised in 70:46923; August 11, 2005. Species by unit designations were published in 71:7117, February 10, 2006.

www.fws.gov/policy/library/2006/06-1080.html

www.fws.gov/policy/library/2006/06-1080.pdf (6.6 MB)



Colusa Grass
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RECOVERY PLAN: Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon; December 15, 2005.

http://www.fws.gov/sacramento/es/recovery_plans/vp_recovery_plan_links.htm

5-YEAR REVIEW: Completed June 2008

http://ecos.fws.gov/docs/five_year_review/doc1930.pdf

DESCRIPTION



Colusa Grass
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Colusa grass is a robust, tufted annual in the grass family (Poaceae). It is the only species in the genus *Neostapfia*. Its closest relatives are the Orcutt grasses (See Orcuttiae Grasses below).

The inflorescence and overall appearance of Colusa grass are unique, so this species is not easily confused with any other. Compared to other members of the Orcuttiae, Colusa grass shows fewer adaptations to existence underwater, indicative of its relatively primitive evolutionary position and the shorter duration of underwater growth. See Hickman (1993) in General Information about California Plants, below, for a detailed description of these grasses.

The aquatic seedlings of the species have only one or two juvenile leaves. The terrestrial stage consists of multiple stems arising in clumps from a common root system.

The lower portions of the stems lie on the ground. The upper portions are erect and terminate in dense cylindrical, spike-like inflorescences that superficially resemble small ears of corn. Overall stem length ranges from 10 to 30 centimeters (3.9 to 11.8 inches).

The entire plant is pale gray-green when young. It produces a glue-like liquid called an exudate. This hardens as the plant matures, making it brown. The exudate most likely helps to repel herbivores.

Leaf length is 5 to 10 centimeters (2.0 to 3.9 inches). Each stem produces one dense, cylindrical inflorescence that is 2 to 8 centimeters (0.8 to 3.1 inches) long and 8 to 12 millimeters (0.31 to 0.47 inch) broad. Within the inflorescence, the spikelets are densely packed in a spiral arrangement; the tip of the rachis projects beyond the spikelets.

VERNAL POOLS:

Vernal pools are a unique kind of wetland ecosystem. Central to their distinctive ecology is their ephemeral nature. Vernal pools fill with water temporarily, typically during the winter and spring, and then disappear until the next rainy season.

In California, where extensive areas of vernal pool habitat developed over a long geological timeframe, unique suites of plants and animals have evolved that are specially adapted to the unusual conditions of vernal pools. Fish and other predators are among species that have been excluded evolutionarily by the annual filling and drying cycles of vernal pools.

The prolonged annual dry phase of the vernal pool ecosystem also has prevented the establishment of plant species typical of more permanent wetland ecosystems.

ORCUTTIEAE GRASSES:

The genera *Orcuttia*, *Neostapfia* and *Tuctoria* form the Orcuttieae tribe. All members of the Orcuttieae tribe share several characteristics that differ from many other grasses. Most grasses have hollow stems, but the Orcuttieae have stems filled with pith (the soft, spongy center found in many plants). Another difference is that the Orcuttieae produce two or three different types of leaves during their life cycle, whereas most grasses have a single leaf type throughout their life span.

The juvenile leaves of the Orcuttieae, which form underwater, are cylindrical and clustered into a basal rosette. After the pool dries, terrestrial leaves form in all species of the tribe. These leaves have flattened blades and are distributed along the stem.

Another characteristic common to all Orcuttieae is the production of an aromatic exudate, which changes from clear to brown during the growing season. The exudate most likely helps to repel herbivores.

Orcuttia species have a third type of leaf that is not found in *Neostapfia* or *Tuctoria*. The terrestrial leaves of the Orcuttieae also differ from other grasses in other respects. Whereas grass leaves typically are differentiated into a narrow, tubular sheath that clasps the stem tightly and a

broader blade that projects away from the stem, terrestrial leaves of the Orcuttieae are broad throughout and the lower portion enfolds the stem only loosely.

DISTRIBUTION:

Colusa grass has the broadest ecological range among the Orcuttieae tribe, as it occurs on the rim of alkaline basins in the Sacramento and San Joaquin Valleys, on acidic soils of alluvial fans and stream terraces along the eastern margin of the San Joaquin Valley and into the adjacent foothills, as well as in Northern Claypan and Northern Hardpan vernal pool types. It has been found growing in pools ranging from 0.02 to 617.5 acres.

Currently, there are 43 presumed extant occurrences in Yolo, Solano, Merced, and Stanislaus Counties. The vast majority of these occurrences are in Stanislaus County (15 occurrences) and Merced County (22 occurrences).

U.S. Geological Survey 7.5 Minute Quads: El Nido (401B)* 3712024, Sandy Mush (402A) 3712025, Turner Ranch (402B) 3712026, Owens Reservoir (420C) 3712032, Haystack Mountain (421A) 3712043, Yosemite Lake (421B) 3712044, Merced (421C) 3712034, Planada (421D) 3712033, Arena (422C) 3712036, Atwater (422D) 3712035, Cooperstown (441A) 3712065, Paulsell (441B) 3712066, Montpelier (441C) 3712056, Turlock Lake (441D) 3712055, Waterford (442A)* 3712067, Knights Ferry (459C) 3712076, Bachelor Valley (460A) 3712087, Antioch North (481D) 3812117, Saxon (497B) 3812146, Dozier (498D) 3812137, Princeton (562A)* 3912241, Logandale (562B) 3912242. (*Presumed extirpated)

THREATS

The largest continuing threat to this species is agricultural conversion, especially in Stanislaus County. Urbanization is the second greatest threat, especially around the University of California, Merced campus. Almost all of the extant occurrences are subject to livestock grazing, thus to the extent inappropriate grazing practices are still being followed at certain sites, these sites may be threatened. Competition from invasive native and nonnative plants poses a problem at several sites.

REFERENCES FOR ADDITIONAL INFORMATION

[General references about California plants](#)

www.fws.gov/sacramento/es/plant_spp_accts/plant_references.htm

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